

Input by Carol Lewis for AIAA Power Technology Highlights article for Aerospace America

This will be a component of a larger article to be authored by Gary Bennett, who is a power technology consultant and a former NASA HQ program manager

This is my entire contribution.

Prototype lithium-ion cells, obtained from industry, completed 10 month storage tests at JPL while connected to a simulated Mars lander spacecraft bus. The cells demonstrated excellent reversible capacity upon cycling and also were successfully cycled under a mission simulation profile. The results of the tests demonstrated that lithium-ion cells are capable of successfully surviving cruise conditions to Mars. Lithium-ion batteries have also been chosen as the baseline energy storage technology for the NASA Europa Orbiter mission, to be launched in 2006. Two critical mission requirements for the batteries are: a long calendar life of 6 to 8 years, while connected to the spacecraft bus; and resistance to the high radiation levels of about 4 MRad which are expected to be encountered. To demonstrate the viability of the lithium-ion technology for this mission, JPL will be conducting both accelerated and real time storage tests on prototype cells as well as radiation tests on the cells and components. The cells will be obtained from different industry manufacturers.